

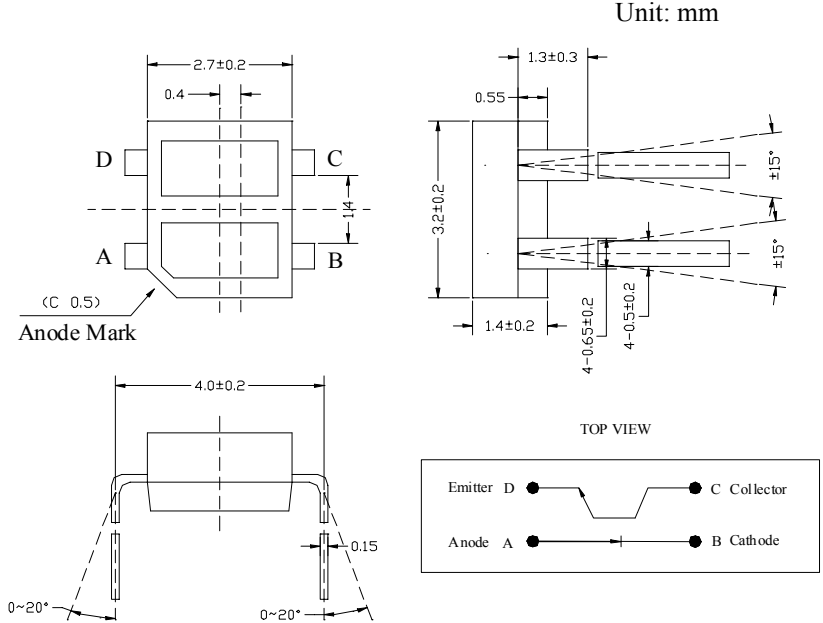
SUBMINIATURE PHOTOINTERRUPTER

MIR-3305

Description

The MIR-3305 consists of a Gallium Arsenide infrared emitting diode and a NPN silicon phototransistor built in a black plastic housing. It is a reflective subminiature photointerrupter.

Package Dimensions



NOTE:
 (1). Tolerance: ± 0.2 mm
 (2). () Reference dimensions

Features

- Compact and thin
- MIR-3305 : Compact DIP, long lead type
- Optimum detecting distance : 0.8 - 1.0 mm
- Wavelength : 940nm
- Visible light cut-off type

Absolute Maximum Ratings

@ $T_A = 25^\circ\text{C}$

| Parameter | | Symbol | Minimum Rating | Maximum Rating | Unit |
|--|-------------------------------------|---------------|-------------------|----------------|------|
| INPUT | Continuous Forward Current | I_F | | 50 | mA |
| | Reverse Voltage | V_R | | 5 | V |
| | Power Dissipation | P_{ad} | | 75 | mW |
| OUTPUT | Collector-emitter breakdown voltage | $V_{(BR)CEO}$ | 30 | | V |
| | Emitter-Collector breakdown voltage | $V_{(BR)ECO}$ | 5 | | V |
| | Collector power dissipation | P_c | | 75 | mW |
| Total power dissipation | | P_{TOT} | | 100 | mW |
| Operating Temperature Range | | T_{opr} | -25 °C to + 85°C | | |
| Storage Temperature Range | | T_{stg} | -40 °C to + 100°C | | |
| Lead Soldering Temperature (within 5 sec, minimum 1.6mm from body) at 260 °C | | | | | |

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Optical-Electrical Characteristics

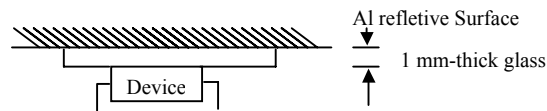
@ T_A=25°C

| Parameter | | symbol | Min. | Typ. | Max. | Unit. | Test Conditions | |
|--------------------------|------------------------|------------------|------|------|------|---------------------|--|--|
| Input | Forward Voltage | V _F | - | - | 1.3 | V | I _F =20mA | |
| | Reverse Current | I _R | - | - | 10 | μA | V _R =5V | |
| Output | Collector Dark Current | I _{ceo} | - | - | 0.2 | μA | V _{ce} =10V | |
| Transfer Characteristics | *1 Collector Current | I _c | B | 38 | - | 75 | μA | I _F =4mA, V _{ce} =5V |
| | | | C | 56 | - | 108 | | |
| | | | D | 80 | - | 151 | | |
| | | | E | 112 | - | 216 | | |
| | Response Time (RISE) | t _r | - | 20 | 100 | μS | I _c =100μA, V _{ce} =2V | |
| | Response Time (FALL) | t _f | - | 20 | 100 | μS | R _L =1kΩ | |
| *2 Leak Current | I _{LEAK} | - | - | 0.1 | μA | V _{ce} =5V | | |

*1 THE CONDITION AND ARRANGEMENT OF THE REFLECTIVE OBJECT ARE SHOWN AS FOLLOWING .

*2 WITHOUT REFLECTIVE OBJECT.

TEST CONDITION AND ARRANGEMENT FOR COLLECTOR CURRENT



Typical Optical-Electrical Characteristic Curves

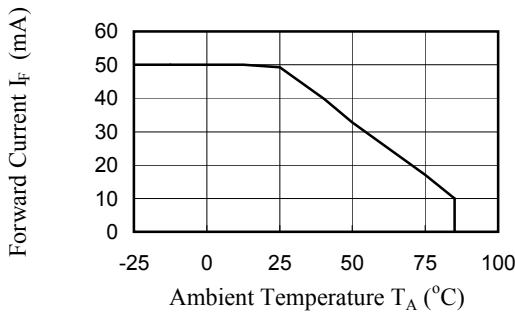


Fig.1 forward Current vs. Ambient Temperature

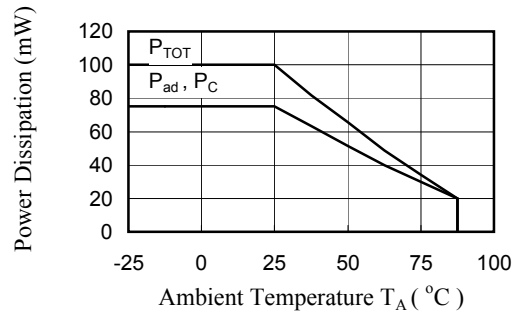


Fig.2 Power Dissipation vs. Ambient Temperature

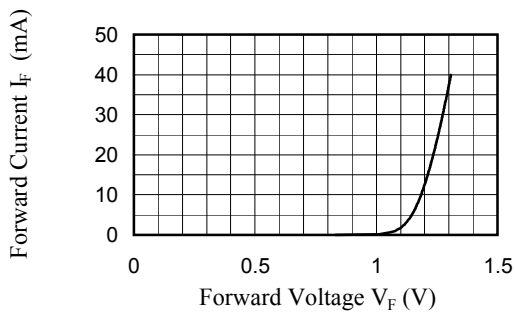


Fig.3 Forward Current vs. Forward Voltage

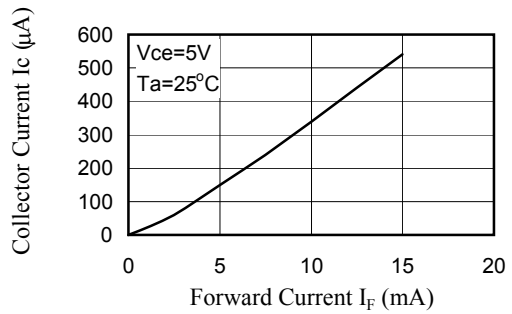


Fig.4 Collector Current vs. Forward Current

Typical Optical-Electrical Characteristic Curves

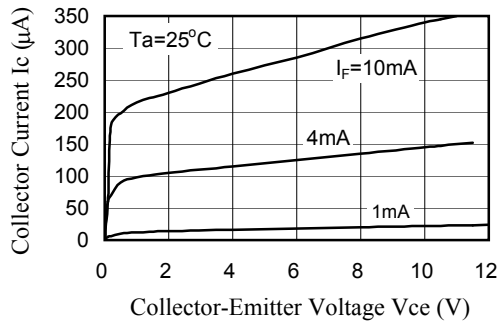


Fig.5 Collector Current vs. V_{ce}

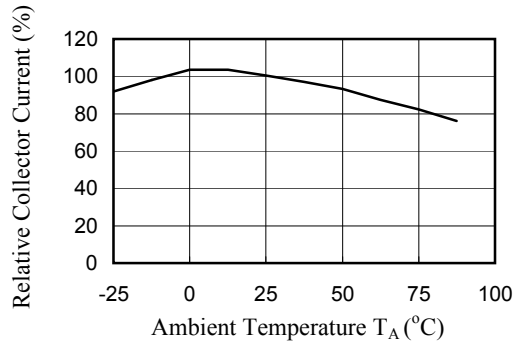


Fig.6 Relative Collector Current vs.

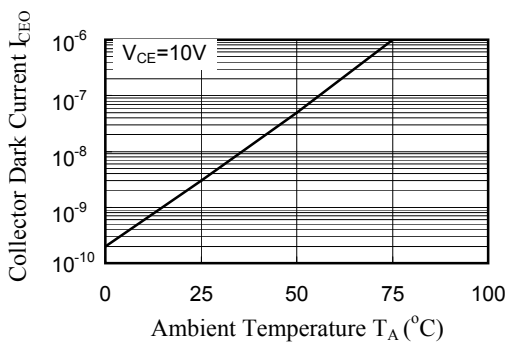


Fig.7 Collector Dark Current vs. Ambient Temperature

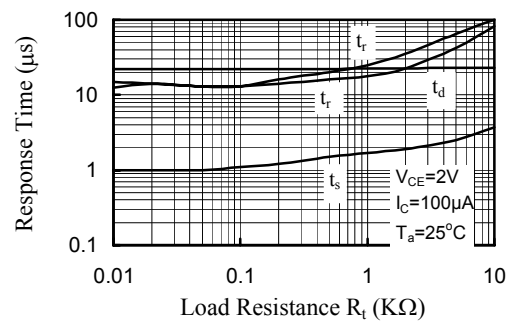


Fig.8 Response Time vs. Load Resistance

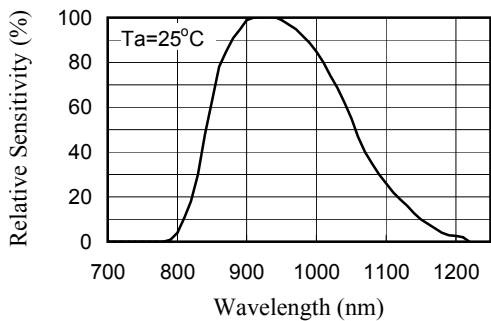


Fig.9 Spectral Sensitivity (Detecting side)

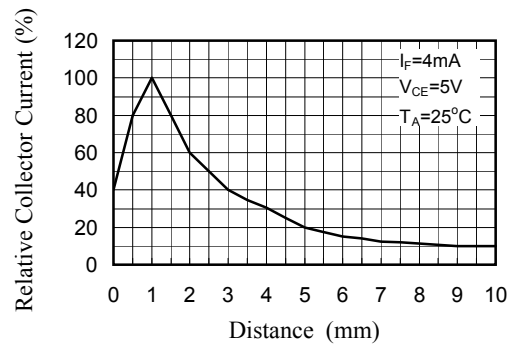


Fig.10 Relative Collector Current vs. Distance between MIR-3301 and Card

Test Circuit for Response Time

